

Original Research Article

Clinical study of carcinoma of larynx: a retrospective analysis

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ABSTRACT

Background: Carcinoma of larynx is the third most common cancer in head and neck, sixth most common cancer among men in India. This study aims to identify the patterns of clinical presentation, epidemiological features and management of laryngeal carcinoma in a tertiary care centre of Indian armed forces.

Methods: This is a retrospective analysis of patients admitted in a Command hospital from January 2007 to December 2009.

Results: A total of 28 patients were treated in 3 year duration. All the patients were males. The majority of patients belonged to 7th decade of life with youngest 49 years old and the oldest 80 years. Supraglottic carcinoma (71%) was the most common laryngeal carcinoma followed by glottic carcinoma(29%).Hoarseness of voice (82%) was the most common presenting complaint followed by dysphagia (42%) and dyspnoea (21%). 32% of patients reported after initial emergency tracheostomy. 12 (42%) patients were treated with curative surgery, 4 (14%) were treated with curative radiotherapy. Rest of patients required palliative therapy.

Conclusions: Laryngeal carcinoma is found predominantly in males at seventh decade of life and advanced stage. Treatment with curative intent may be possible in around 70% of patients.

Keywords: Laryngeal carcinoma, Epidemiology, Clinical presentation, Complications

INTRODUCTION

Carcinoma of the larynx is one of the very common malignancies among men in India. In 2012, an estimated 25,446 new cases were diagnosed, and 17,560 Indians lost their lives from laryngeal cancer.¹ The incidence of laryngeal cancer has been reported to be 1.26-8.18 per 100,000 populations, in different regions of the country.²

The study aims to identify the patterns of clinical presentation, epidemiological features and management of laryngeal carcinoma in a tertiary care centre. It tries to document the outcomes of different modalities of treatment used and identify any scope for improvement.

METHODS

This is a retrospective analysis of patients admitted in a Command hospital from January 2007 to December 2009. All the fresh and recurrent cases of primary laryngeal carcinoma were included for the study. Carcinoma of the hypopharynx or oropharynx with extension to larynx was excluded.

Detailed history was taken with particular reference to hoarseness of voice, dyspnoea, dysphagia, sore throat, foreign body sensation, cough and weight loss. Physical examination included assessment of performance status, general physical examination, examination of oral cavity

and neck, indirect laryngoscopy, fibre optic laryngoscopy and systemic examination. Patients who were planned for surgery were subjected to direct laryngoscopic examination. Contrast enhanced CT scan from base of skull to clavicles were performed in all patients to assess the local and regional extent of the disease process. MRI neck was reserved for patients with equivocal findings on CT scan with respect to the thyroid cartilage/ prevertebral fascia involvement.

Diagnosis was confirmed by either FNAC of nodes or direct laryngoscopy and biopsy of the primary. Chest X-ray was done for all patients as a part of metastatic work up. AJCC TNM classification system used for staging the disease. Treatment protocol followed is mentioned below:

Treatment protocol for primary

T1a; micro laryngeal surgery/radical radiotherapy, T1b; T2 radical radiotherapy, T3, T4a (no cartilage involvement), concurrent chemoradiotherapy (CCRT), T4a (cartilage involvement), surgery+radiotherapy (RT), T4b definitive/palliative, CCRT/RT.

Treatment protocol for neck

Glottic cancer T1 N0 was observed observe, in rest all cases, neck was treated in the same way as the treatment for primary (neck dissection for surgically treated patients and radiotherapy for patients treated with radiation). Patients treated with RT (primary and neck) N1/N2, observation and N3, neck dissection. Patients treated primarily with surgery were given adjuvant RT/ adjuvant CCRT if histopathological examination suggested T4, N2/N3, extra nodal extension, margin positivity and lymphovascular invasion/perineural invasion. Protocol for relapse, local; total laryngectomy; if treated initially with RT, radiotherapy; if treated initially with surgery. Protocol for relapse, regional; untreated neck; surgery, post CCRT/RT; surgery, post neck dissection; RT. Poor performance status/unsalvageable disease/metastatic disease; palliative/best supportive care (BSC) only. Statistical package for the social sciences (SPSS) software was used as statistical tool to analyze data.

RESULTS

A total of 28 patients were treated in the study period. All patients were males and used either tobacco or alcohol or both. The age group ranged from 49-80 years (Figure1). 16 (57%) patients were in their seventh decade of life. The most common symptoms were hoarseness of voice (82%) and dysphagia (42%) (Table 1). None presented with haemoptysis. Emergency tracheostomy was required before any specific treatment in 9 (32%) patients. Supraglottic carcinoma 20(71%) was the most common site of involvement followed by glottic carcinoma 8 (29%). No case of isolated subglottic carcinoma was

seen. Overall 20 (71%) patients presented with stage IV disease (Figure 2). Majority of supraglottic carcinoma patients had late presentation than glottic carcinoma. 16 (80%) patients of supraglottic carcinoma were stage IV at presentation and none were with stage I or II disease. On the contrary 4 (50%) glottic carcinoma patients presented with stage I/II disease. 12 (43%) patients were subjected to surgical treatment with curative intent. 8 (28%) received radical RT/CCRT with curative intent. 5 (18%) patients were treated with non surgical palliation/BSC (Figure 3). 3 (10%) patients were unwilling for any form of treatment.

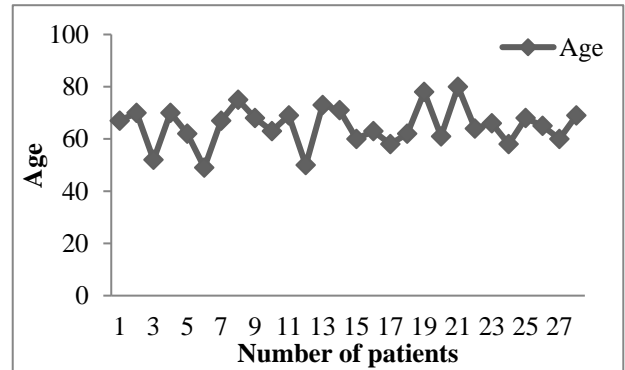


Figure 1: Age distribution.

Table 1: Symptoms wise distribution of cases.

Symptoms	N (%)
Hoarseness of voice	23 (82)
Dysphagia	12 (42)
Dyspnoea	6 (21)
Lymphadenopathy	2 (7)
Weight loss	1 (3.5)

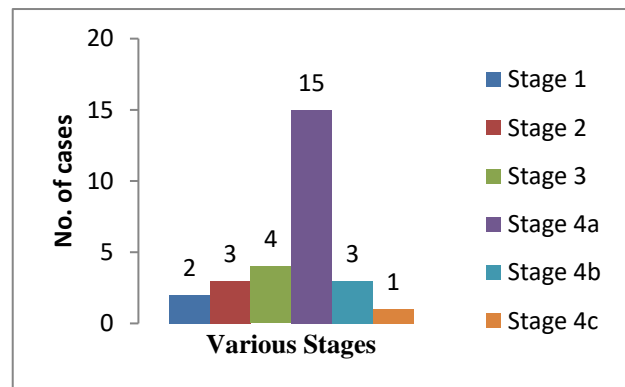


Figure 2: Stage wise distribution of cases.

Total laryngectomy (TL) was the most common surgery performed (11 out of 12) (Figure 4). Micro laryngeal surgery (MLS) was performed in 1 patient. Post operatively 7 (59%) patients had uneventful recovery. 4 (33%) patients had morbidity out of which 3 from pharyngocutaneous fistula and 1 from wound infection. There was 1 (8%) mortality due to anastomotic leak (case

of total laryngo pharyngo esophagectomy). Our pharyngocutaneous fistula rate was 36% (4 out of 11 laryngectomies). Out of 11 candidates who underwent TL, 8 cases received adjuvant RT. 2 patients defaulted and there was one mortality.

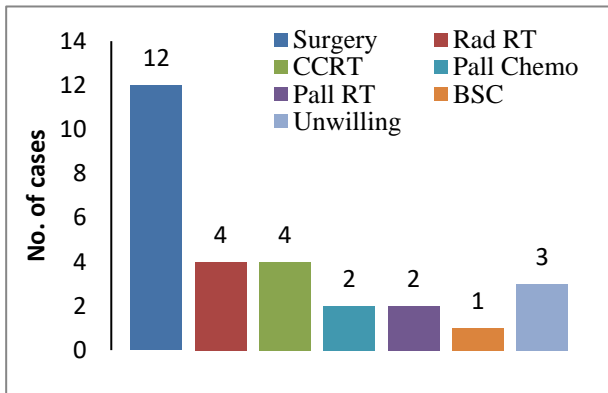


Figure 3: Treatment modalities.

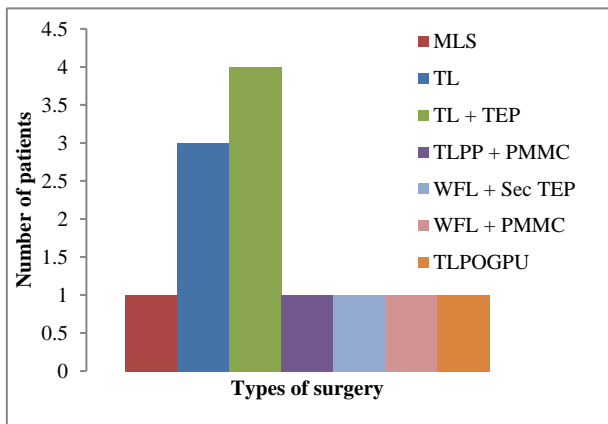


Figure 4: Distribution according to types of surgeries performed, TEP; tracheo esophageal prosthesis, TLPP; total laryngectomy partial pharyngectomy, PMMC; pectoralis major myocutaneous flap, WFL; wide field laryngectomy, TLPOGPU; total laryngo pharyngo esophagectomy with gastric pull up.

A total of 18 (64%) patients received RT either for cure (8 cases) or for palliation (10 cases). Grade I/II skin and mucosal changes were universal phenomenon. 2 (11%) patients had grade III skin/mucosal changes. Delayed effects were in the form of aspiration pneumonia in 2 (10%) patients and pharyngeal stenosis 1 (5%) patient.

On median follow up of 24 months, the overall survival was 16 (57%). 4 (14.3%) patients had loco regional recurrence, 2 (7.1%) patients had systemic recurrence (lungs), 1 (3.5%) had second primary.

DISCUSSION

Carcinoma of larynx is one of the common malignancy amongst men in India with about 20,000 new cases every

year. Male to female ratio is around 10:1. It constitutes about 3 to 6% of all malignancies among men in India.³

Cancer of the larynx is mainly caused by tobacco smoking and alcohol consumption.⁴ Tobacco dominates the risk for cancers of the glottis, while alcohol is more prominent for cancer of the supraglottis.⁵ According to a large population-based case control study in southern Europe, over 90% of the incidence of laryngeal cancer could be prevented by avoiding smoking and alcohol consumption.⁶ The risk returns to the nonsmokers level by 15 years after cessation of smoking.⁷ In our study group of 28 patients all patients used either tobacco or alcohol or both.

Majority of our patients were at their 7th decade of life. The most common presenting complaint was hoarseness of voice. This is an early symptom for glottic lesions, but a late one for supraglottic tumours.⁸ This probably explains the relatively early presentation in glottic tumors and late presentation in supraglottic tumors.

Supraglottic carcinoma (71%) was more common than glottic carcinoma (29%) in the present study. Geographically there are major differences in relative distribution of supraglottic vs. glottic carcinoma with different survival. In United States the distribution of carcinoma among supraglottis, glottis and subglottis reported by Austen is 40:59:1.⁹ Glottic cancer has better prognosis than supraglottic, subglottis, as well as the rare laryngeal cartilage tumours.¹⁰

In the present study half of patients with glottic carcinoma (4/8) presented early (stage I/II). Remaining half (4/8) presented with advanced disease. All early tumors were treated with curative intent 75% (3/4) with radical RT and 25% (1/4) with MLS. Among advanced glottic carcinoma patients 50% (2/4) were treated with curative surgery and the remaining patients were not willing for any form of treatment.

Advanced stages (T3-4 and/or N+) of laryngeal squamous cell carcinoma carry a more dismal prognosis with long-term survival rates ranging from 30% to 60% depending on the site and stage of the tumor.^{11,12} In our study all supraglottic carcinoma patients presented with advanced disease (stage III 20%, stage IV 80%). 60% (12/20) patients were treated with curative intent. 45% (9/20) patients were treated with curative surgery. 15% (3/20) patients were treated with CCRT.

Total laryngectomy was the most common surgery performed (11 out of 12). T4a tumors with thyroid cartilage involvement with otherwise resectable disease were the most common indication. Pharyngocutaneous fistula was the most common complication which occurred in 36% (4/11) of our laryngectomies. The reported incidence of PCF is extremely variable in the literature, ranging from 5% to 65%.¹³⁻¹⁶

Morbidity rate was 33% (4/12) in our series. Literature review suggested a morbidity rates between 30-40% after laryngectomy.¹⁷⁻¹⁹ In our series patient who was subjected to total laryngo pharyngo esophagectomy with gastric pull up reconstruction died due to anastomotic breakdown associated with pharyngocutaneous fistula and gastrocutaneous fistula. The mortality rate was 8% (1/12). The mortality after laryngectomy described in literature varied between 0.5% to 13% with increased mortality in patients undergoing total laryngo pharyngectomy.¹⁷⁻¹⁹

With 24 months of follow up the overall survival was 57% (16/28). The 2 year survival for supraglottic carcinoma patients was 55% (11/20). For glottic carcinoma patients the 2 year survival was 62.5% (5/8). These results are comparable to western literature considering 71% of our patient population presented at stage IV disease. The recent AJCC cancer staging handbook reports observed 2 year survival for stage IV laryngeal carcinoma to be 50.5%.¹⁹

Our study has a limitation in that it has only 2 years of follow up. The study place being an army hospital with relatively frequent changes in surgical team might have added a little in the observed outcomes of the treatment.

CONCLUSION

Carcinoma larynx is a largely preventable cancer. Males are most commonly affected with peak incidence at sixth/seventh decade of life. It constitutes 5% of all malignancy among men in India. Glottic carcinoma patients tends to present early with better survival than supra or subglottic carcinomas. Treatment with curative intent may be possible in around 70% of patients. As our study documents the current trends in the presentation, management and outcomes for carcinoma of larynx, it may serve as a referral literature for future advances in the treatment of laryngeal cancers in India.

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